AMENDMENTS TO THE CLAIMS

Please amend claims as shown below.

Claim 1 (currently amended): A method for determining a target spectrum for a light source to be used in a projection system in which light from the light source is:

[[(i)]] 1) split into sub-portions either spatially or in time,

[[(ii)]] 2) the sub-portions are filtered through red, green, and blue filters, and

[[(iii)]] 3) the filtered sub-portions are recombined as a colored image on a screen (the "splitting/filtering/recombining process"),

said method comprising:

[[(A)]] A) specifying desired color coordinates for red light, green light, and blue light;

[[(B)]] B) specifying desired color coordinates for white light produced by the splitting/filtering/recombining process (the "recombined white light");

[[(C)]] C) specifying a set of filter characteristics for the red, green, and blue filters; and

[[(D)]] D) determining either

[[(i)]] i) a target spectrum for the light source or

[[(ii)]] ii) a combination of a target spectrum for the light source and a revised set of filter characteristics for the red, green, and blue filters based on a combination of criteria which includes:

[[(a)]] a) reducing differences between calculated color coordinates for filtered red light, filtered green light and filtered blue light and the specified desired color coordinates for those lights;

[[(b)]] b) reducing differences between calculated color coordinates for recombined white light and the specified desired color coordinates for that light; and

[[(c)]] c) increasing calculated light transmission efficiency for the splitting/filtering/recombining process.

Claim 2 (currently amended): The method of Claim 1 wherein in step [[(C)]] <u>C</u>, the set of filter characteristics for the red, green, and blue filters are specified in terms of cutoff points for the filters.

Claim 3 (original): The method of Claim 2 wherein the set of filter characteristics are for ideal red, green, and blue filters which respectively correspond to actual red, green, and blue filters, and the cutoff points are equal to the 50% transmission points for the actual filters.

Claim 4 (currently amended): The method of Claim 1 wherein in step [[(D)]] <u>D</u>, the calculated light transmission efficiency is based on a calculated photopic weighted intensity for the target light source spectrum and a calculated photopic weighted intensity for the recombined white light.

Claim 5 (currently amended): ~~The method of Claim 1~~ <u>A method for determining a target spectrum for a light source to be used in a projection system in which light from the light source is:</u>

<u>1) split into sub-portions either spatially or in time,</u>

<u>2) the sub-portions are filtered through red, green, and blue filters, and</u>

<u>3) the filtered sub-portions are recombined as a colored image on a screen (the "splitting/filtering/recombining process");</u>

<u>said method comprising:</u>

<u>A) specifying desired color coordinates for red light, green light, and blue light;</u>

<u>B) specifying desired color coordinates for white light produced by the splitting/filtering/recombining process (the "recombined white light");</u>

<u>C) specifying a set of filter characteristics for the red, green, and blue filters; and</u>

<u>D) determining either</u>

<u>i) a target spectrum for the light source or</u>

<u>ii) a combination of a target spectrum for the light source and a revised set of filter characteristics for the red, green, and blue filters based on a combination of criteria which includes:</u>

a) reducing differences between calculated color coordinates for filtered red light, filtered green light and filtered blue light and the specified desired color coordinates for those lights;

b) reducing differences between calculated color coordinates for recombined white light and the specified desired color coordinates for that light; and

c) increasing calculated light transmission efficiency for the splitting/filtering/recombining process;

wherein in step [[(D)]] D, calculated light transmission efficiency is increased by minimizing additional filtering of red light, green light, and blue light beyond that introduced in connection with criterion [[(a)]] a.

Claim 6 (currently amended): ~~The method of Claim 1~~ A method for determining a target spectrum for a light source to be used in a projection system in which light from the light source is:

1) split into sub-portions either spatially or in time,

2) the sub-portions are filtered through red, green, and blue filters, and

3) the filtered sub-portions are recombined as a colored image on a screen (the "splitting/filtering/recombining process"),

said method comprising:

A) specifying desired color coordinates for red light, green light, and blue light;

B) specifying desired color coordinates for white light produced by the splitting/filtering/recombining process (the "recombined white light");

C) specifying a set of filter characteristics for the red, green, and blue filters; and

D) determining either

i) a target spectrum for the light source or

ii) a combination of a target spectrum for the light source and a revised set of filter characteristics for the red, green, and blue filters based on a combination of criteria which includes:

a) reducing differences between calculated color coordinates for filtered red light, filtered green light and filtered blue light and the specified desired color coordinates for those lights;

b) reducing differences between calculated color coordinates for recombined white light and the specified desired color coordinates for that light; and

c) increasing calculated light transmission efficiency for the splitting/filtering/recombining process;

wherein in step [[(D)]] D, criteria [[(a)]] a and [[(b)]] b are given precedence over criterion [[(c)]] c.

Claim 7 (currently amended): The method of Claim 1 wherein in step [(D)]] D, the target spectrum for the light source or the combination of the target spectrum for the light source and the revised set of filter characteristics for the red, green, and blue filters is determined iteratively.

Claim 8 (currently amended): The method of Claim 1 wherein in step [[(D)]] D only a target spectrum for the light source is determined.

Claim 9 (currently amended): A method for constructing a projection system comprising:

[[(I)]] I) determining a target spectrum for a light source using the method of Claim 1;

[[(II)]] II) selecting a light source based on step [[(I)]] I;

[[(III)]] III) selecting red, green, and blue filters based on a set of target filter characteristics for those filters where the set of target filter characteristics are either the set of filter characteristics specified in step [[(C)]] C of Claim 1 or, if revised, the revised set of filter characteristics determined in step [[(D)]] D of Claim 1; and

[[(IV)]] IV) constructing a projection system using the light source selected in step [[(II)]] II and the filters selected in step [[(III)]] III.

Claim 10 (currently amended): The method of Claim 9 wherein the spectrum of the light source selected in step [[(II)]] II is not identical to the target spectrum determined in step [[(I)]] I.

Claim 11 (currently amended): The method of Claim 9 wherein the filter characteristics of the red, green, and blue filters selected in step [[(III)]] III are not identical to the set of target filter characteristics.

Claim 12 (currently amended): The method of Claim 9 wherein the projection system constructed in step [[(IV)]] IV has a calculated light transmission efficiency for the splitting/filtering/recombining process of at least 75%.

Claim 13 (currently amended): The method of Claim 9 wherein the projection system constructed in step [[(IV)]] IV has a calculated light transmission efficiency for the splitting/filtering/recombining process of at least 85%.

Claim 14 (currently amended): The method of Claim 9 wherein the projection system constructed in step [[(IV)]] IV has a calculated light transmission efficiency for the splitting/filtering/recombining process of at least 95%.

Claims 15-17 (cancelled)

Claim 18 (currently amended): A projection system, comprising:

a light source ~~and a plurality of color filters wherein: (A) the light source has~~ having a measured distribution of optical power as a function of wavelength S(λ)[;], ~~(B) the light source has~~ and having a photopic weighted intensity Y(λ) obtained by mathematically filtering S(λ) with a filter having the sensitivity of the human eye; ~~(C) the color filters have~~

a plurality of color filters having measured 50% cutoff points; ~~; and (D) when: (i) the measured 50% cutoff points are used to define ideal filters,~~

a plurality of ideal filters defined from the measured 50% cutoff points; ~~(ii) the ideal filters are mathematically applied to $S(\lambda)$ to produce a plurality of filtered lights, and~~

a plurality of filtered lights produced by mathematically applying the plurality of ideal filters to $S(\lambda)$; ~~(iii) the plurality of filtered lights are mathematically combined to produce simulated white light,~~

a simulated white light produced by mathematically combining the plurality of filtered lights and having ~~the simulated white light so obtained has~~ a calculated photopic weighted intensity $Yb(\lambda)$[,]; and

a visible spectrum extending from 390 nm to 770 nm;

wherein ~~the~~ an integral of ~~which~~ $Yb(\lambda)$ over the visible spectrum is at least 75% of ~~the~~ an integral of $Y(\lambda)$ over the visible spectrum[,] ~~where the visible spectrum is taken to extend from 390 nm to 770 nm~~.

Claim 19 (original): The projection system of Claim 18 wherein the integral of $Yb(\lambda)$ over the visible spectrum is at least 85% of the integral of $Y(\lambda)$ over the visible spectrum.

Claim 20 (original): The projection system of Claim 18 wherein the integral of $Yb(\lambda)$ over the visible spectrum is at least 95% of the integral of $Y(\lambda)$ over the visible spectrum.

Claim 21 (new): A method, comprising:

providing a source spectrum;

determining a blue filter long wavelength cutoff, for transmitting wavelengths less than the blue filter long wavelength cutoff and blocking wavelengths greater than the blue filter long wavelength cutoff;

determining a green filter short wavelength cutoff and a green filter long wavelength cutoff, for blocking wavelengths less than the green filter short wavelength cutoff, for transmitting wavelengths between the green filter short wavelength cutoff and the green filter long wavelength cutoff, and for blocking wavelengths greater than the green filter long wavelength cutoff;

determining a red filter short wavelength cutoff, for blocking wavelengths less than the red filter short wavelength cutoff and transmitting wavelengths greater than the red filter short wavelength cutoff;

forming a blue channel spectrum from the source spectrum and the blue filter long wavelength cutoff;

forming a green channel spectrum from the source spectrum, the green filter short wavelength cutoff and the green filter long wavelength cutoff;

forming a red channel spectrum from the source spectrum and the red filter short wavelength cutoff;

forming a white channel spectrum from the blue channel spectrum, the green channel spectrum and the red channel spectrum;

calculating blue color coordinates from the blue channel spectrum;

calculating green color coordinates from the green channel spectrum;

calculating red color coordinates from the red channel spectrum;

calculating white color coordinates from the white channel spectrum;

forming a blue color difference from the blue color coordinates and desired blue color coordinates;

forming a green color difference from the green color coordinates and desired green color coordinates;

forming a red color difference from the red color coordinates and desired red color coordinates;

forming a white color difference from the white color coordinates and desired white color coordinates;

calculating a source intensity from the source spectrum;

calculating a white intensity from the white channel spectrum;

forming an intensity difference from the white intensity and the source intensity; and

adjusting at least one of:

the source spectrum,

the blue filter long wavelength cutoff,

the green filter short wavelength cutoff,

the green filter long wavelength cutoff, or

the red filter short wavelength cutoff;

to minimize at least one of:

the blue color difference,

the green color difference,

the red color difference,

the white color difference, or

the intensity difference.

Claim 22 (new): The method of claim 21, wherein the blue color coordinates, the green color coordinates, the red color coordinates and the white color coordinates are all numerical pairs.

Claim 23 (new): The method of claim 22, wherein the blue color coordinates, the green color coordinates, the red color coordinates and the white color coordinates are all 1931 CIE color coordinates.

Claim 24 (new): The method of claim 21, wherein the source intensity is calculated by integrating the source spectrum from 390 nm to 770 nm.

Claim 25 (new): The method of claim 21, wherein the source intensity is calculated by integrating from 390 nm to 770 nm a product of the source spectrum and a filter having the sensitivity of the human eye.

Claim 26 (new): The method of claim 21, wherein the white intensity is calculated by integrating the white channel spectrum from 390 nm to 770 nm.

Claim 27 (new): The method of claim 21, wherein the white intensity is calculated by integrating from 390 nm to 770 nm a product of the white channel spectrum and a filter having the sensitivity of the human eye.

Claim 28 (new): The method of claim 21, wherein the white intensity is at least 75% of the source intensity.

Claim 29 (new): The method of claim 28, wherein the white intensity is at least 85% of the source intensity.

Claim 30 (new): The method of claim 29, wherein the white intensity is at least 95% of the source intensity.

Claim 31 (new): The method of claim 21, wherein the blue filter long wavelength cutoff, the green filter short wavelength cutoff, the green filter long wavelength cutoff and the red filter short wavelength cutoff each corresponds to an idealized transmission profile and defines a boundary between a 0% transmission region and a 100% transmission region.

Claim 32 (new): The method of claim 21, wherein the blue filter long wavelength cutoff, the green filter short wavelength cutoff, the green filter long wavelength cutoff and the red filter short wavelength cutoff each corresponds to a 50% transmission point on an actual transmission profile.

Claim 33 (new): The method of claim 21,

wherein the blue filter long wavelength cutoff is different from the green filter short wavelength cutoff; and

wherein the green filter long wavelength cutoff is different from the red filter short wavelength cutoff.